Backing up your system - a (Norton) Ghost story

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Wouldn't it be great if every time something went wrong with your Windows setup you could just click a few buttons and have everything restored to its original state in a matter of minutes? Well, it *can* be arranged... more quickly and painlessly than you would imagine.

What you need to do is get hold of some 'imaging' software. What this will do is store an exact copy of your fully functioning Windows installation in a compressed format, which can at a later date, be restored to its former glory when things inevitably go awry. Norton's Ghost, without a doubt, is the best imaging solution around at the moment for the Windows platform. This is effortlessly simple to use and runs from DOS so is capable of backing up all those essential system files that are inaccessible while you're actually within the Windows environment.

This backup process isn't as complicated as it sounds. All you have to do is store your Windows installation on one partition of your hard drive and back up to a *separate* partition. The reason for this becomes clear after you've restored your backup to a partition that is already full of valuable data and find that it has all been wiped out as a result!

Unless using Partition Magic, you'll have to start by formatting your hard drive with 'fdisk', a DOS-based executable delivered as standard with Windows 95, 98 and Me. Make sure you're in DOS (not within the Windows environment, but in *real* DOS mode). Now type fdisk and select 'create new partition'. It's advisable to use somewhere between 2 and 5 gigabytes of your hard drive for the boot partition - this will contain your Windows installation and any other essential applications.

Now create an extended partition to be used for everything else you wish to store on your hard drive. Re-boot your computer and format both partitions using the 'format' command, followed by whichever letter has been assigned to your drive(s), remembering to append a colon to the end like

so: 'format c:'. Re-install Windows to your c: drive and then back up the whole partition to your extended partition using Norton Ghost.

Of course, if you already have more than one hard drive installed you can skip all this, simply backing up to your second drive, although this will involve wasting a hell of a lot of space. The main reason for all this partitioning is to make more efficient use of the available space. When you back up a partition, you can't select which bits you want to compress and which you don't - it's either all or nothing.

For example, if you possess two 80 gigabyte drives, Windows installation stored on one, everything else on the other, when you back up what's on your boot partition, the contents in their entirety are compressed and stored in a single file, not just your Windows and Program Files folders. The upshot of this is that when you decompress this image file back onto your drive, you lose everything else which you may have copied to it after making your backup. This is why it makes sense to have a small-ish partition *solely* for Windows.

Once Ghost is installed within the Windows environment, exit to real DOS using your boot disk and enter the Ghost installation directory. Now copy the main executable (ghost.exe) to your extended partition and run it from there - it is imperative that you don't run the file from the drive you wish to backup. Since this is the only file you will require to

perform a successful backup or system restoration within DOS, by backing it up at this stage you can ensure you will never need to re-install the full Windows application ever again should the need for a fresh drive image arise.

The main executable, being a mere 600kb in size will fit very neatly onto any kind of boot media you care to use (floppy disk, CD, flash drive etc) so you may also like to store a copy of it there. I'm sure the nice chaps at Norton spent a long time programming the extra Windows utilities delivered as standard with Ghost, nevertheless, in my opinion, they're nothing more than gratuitous fluff.

You look like you've seen a ghost! Oh, I see you've met the GUI then. If you click on the menu button in the bottom left-

hand corner of the screen, we can steam ahead with the backup process. Simply select the 'create image' option and choose the drive you wish to backup as well as the drive on which you'd like to store the image, pressing enter in between to confirm your preferences. Next, give your image-to-be a suitable name and press the 'OK' button. Give Ghost a few minutes to work its magic and voila, everything should be safely backed up to a single compressed archive, ready and waiting to save your PC from the dreaded blue screen of death in future. It's worth remembering at this stage that these system images are merely standard data files like any other, hence can be shunted around, deleted, backed up to a CD, DVD or flash drive, chewed up and spat out, sat on and so on and so forth.

Now when Windows inevitably starts doing strange, inexplicable things or simply refuses to boot (curse you Microsoft!), you can simply format your primary partition and restore your original Windows setup via Ghost. This process

can seem a bit daunting at first so let me explain it in a bit more detail.

Before doing anything as a drastic as wiping out your Windows partition, make sure you have created a boot disk. This can be achieved via the Windows control panel in Windows 95/98 or Me, yet is a bit more awkward in Windows 2000/XP because the data used to construct official boot disks is not contained within the operating system itself. The constituent data of the standard Windows 2000/XP boot disk, well boot *disks* actually, occupies *four* floppies. God only knows what the justification for this is. Regardless, if you can't find the 'floppy boot disk set construction kit' disks that came supplied with your Windows setup CD, or refuse to be party to this exercise in data obesity, you can use Norton's 'make boot disk' command from within Windows (OK, I admit this is one of the *less* fluffy features of the Windows interface!).

When you've created a boot disk, stick it in the floppy drive and reboot the computer. Providing it has been set up to first read from the floppy drive prior to searching for the Windows installation on your hard drive, the boot disk will take the reigns, booting your computer into real DOS mode.

Alternatively, should your computer ignore the floppy disk entirely, rebooting into Windows as usual, you will have to edit your BIOS settings. To do this, press the reset button, wait for your computer's stats to appear in that familiar black and white table and press the delete key (if you're unsure of exactly when to do this, just keep hammering the delete key until something happens, or look out for the "press the del key now to enter your BIOS" message!). From the basic settings section of your BIOS menu, you should be able to select the first, second, third and fourth boot device. Make sure your floppy drive is selected as the first boot device followed by your hard drive, save the settings and reboot once again.

As soon as you arrive at the DOS prompt, format your Windows partition using the command 'format c:/q' - the q switch allows you to format a previously formatted drive in a matter of seconds rather than many minutes or even hours. If you've never formatted the drive before, leave out the q switch and commence thumb-twiddling whilst waiting. Formatting isn't strictly necessary at this stage as Ghost will overwrite everything for you, however, I like to be thorough to make sure everything runs smoothly.

Now, to restore your compressed image file, enter the directory where your Ghost executable resides using the 'cd' (change directory) command and type 'ghost'. Browse through the menu until reaching the 'restore image' option, select it, locate your image file and then press the 'OK' button. Inform Ghost the location to which you wish it to be extracted (i.e the c: drive) and click 'OK'.

When the decompression process is complete, eject your boot disk if you haven't already done so, reset the computer and let it boot into Windows as usual. And finally, taking a deep breath, step back from your screen in astonishment to admire your brand new, good-as-the-day-it-was-first-installed Windows setup.

Once you've recovered from the shock of discovering how easy all this was, you can proceed to fill up your computer with useless programs and games you'll never use, safe in the knowledge that the whole shebang can be wiped and

restored to its former glory whenever the mood strikes with a few effortless steps.